

Summer 6-19-2015

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## Recommended Citation

Jiang, Ting; Zhang, Feng; and Qu, Rongbo, "Exploring Electronic Customer-to-customer Interaction Quality in Tourism E-commerce Platform" (2015). *WHICEB 2015 Proceedings*. 19.

<http://aisel.aisnet.org/whiceb2015/19>

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# Exploring Electronic Customer-to-customer Interaction Quality in Tourism E-commerce Platform

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**Abstract:** Electronic customer-to-customer interaction (eCCI) is a widespread phenomenon in e-commerce platforms and becomes crucial in the service offering embedded in web 2.0 and social media technique, but the research is very limited. This study explores the features of customer perceived quality in eCCI in Tourism E-commerce Platform. Furthermore, it distinguishes the quality of interaction between customers on different demographic variables. The results enable the E-commerce enterprises to learn from understanding, influencing, controlling and managing eCCI and provide the further directions on this field.

**Keywords:** customer-to-customer interaction; electronic commerce; quality of customer-to-customer interaction

## 1. INTRODUCTION

With the development of modern science and information, the e-world of web 2.0 comes, which gives the new opportunities for tourism industries, and the traditional tourism has increasingly integrated into the boom of e-tourism. More and more tourists share their experience and knowledge on platforms such as TripAdvisor or Travelzoo. The needs of tourists are more diverse and personalized. Tourism e-commerce will be the development tendency for tourism industries.

A lot of services contain much interaction and shared experiences, and tourism consumption is no an exception that takes place in a social contexts. Vargo & Lusch firstly proposed the conception of service-dominant logic (S-D logic) in service marketings in 2004<sup>[1]</sup>, which is also regarded as the new paradigm of marketing research and the value co-creation is particularly gotten much concerns. Through all kinds of activities, enterprises can realize all kinds of resources interactions with customers, then to help customers create value. Interaction is the nature of value creation and an essential starting point of service research. Nonetheless, much focus on the interactions between employees and customers, less concern is on the interactions between customers, which is called customer-to-customer interaction (CCI) and is acknowledged the scope of more insights. CCI is usually defined as an individual or group interaction customers present during a service encounter contexts<sup>[2]</sup>. However, with the radical change coming up in ways of customer connectivity over social media<sup>[3]</sup>, the e-world CCI which is called electronic customer-to-customer interaction (eCCI) is defined between e-services customers<sup>[4]</sup> and is largely limited but an important challenges in CCI research<sup>[5]</sup>.

## 2. LITERATURE REVIEW

### 2.1 The origin and view of CCI

Martin and Clark define C2C relationships as “individual and group interactions and impressions between customers encountered in the acquisition and consumption of goods and services” in 1996<sup>[6]</sup>. Going beyond the traditional customer-supplier dyad, other relationships have been incorporated into the relationship marketing

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paradigm. The customer-to-customer relationship which is called the forgotten relationship in relationship marketing<sup>[7]</sup> is one such relationship. It's clear that CCI is one if not the central part of any relationship between customers<sup>[8]</sup>. Besides, Some researchers integrated other customer or customer B into the service marketing models<sup>[9-10]</sup>. The interactions with the other customers is beyond the interactions with the employees and the environment in customer's experience.

Since Martin and Pranter firstly and clearly stated the importance of CCI in service settings in 1989 and their landmark paper was published in 1996, it has become a valid research stream and a number of papers have been published from the classification of CCI to the identification of the influence of CCI and CCI consequences on customer satisfaction and loyalty<sup>[11-16]</sup>, as well as experience and performance linkages<sup>[6],[17-18]</sup>. Nicholls and Libai et al. give comprehensive summaries of the current state of CCI research and associated challenges<sup>[3,5]</sup>. But overall, the research on CCI in theory circles is just in beginning, lack of in-depth and extension of CCI, especially pay little attention to the quality issues.

## 2.2 A view of eCCI and eCCIq

With the advent of web 2.0 and social media, There is an increasing need to explore CCI in an e-service context. Technology enables fast, diverse and economical communication among customers different from CCI in physical servicescape. This electronic interaction between customers is called eCCI by Nicholls and means the electronic equivalent of traditional form<sup>[13,19]</sup>. For customers, the servicescape comes into customers' home<sup>[8]</sup>, and for service providers, the embedding of techniques revealing brightly eCCI is the key element for value creation and its quality becomes essential.

It is also crucial that eCCI is different from eWOM (electronic Word of Mouth). The former is two or more customers with product or service consumption behaviors while the latter isn't limited to customers<sup>[8]</sup>. The eCCI only absorbs the attention of several scholars<sup>[5]</sup> and the research is just emerging and yet far from matures.

The term of eCCIq (electronic Customer-to-customer Quality) is put forward by Georgi and Mink who sum up four points of eCCIq: via a computer and a network (online); customers with same product or service related; two or more active parties are involved; quality meaning that perceived quality<sup>[8]</sup>. As this spirit, we define the concept of eCCIq that in E-commerce service settings, a customer or some customers of a product or a service perceive the quality of the interaction process or behavior with the other customer or customers.

## 3. METHODOLOGY

Georgi and Mink put forward the concept of eCCIq firstly in 2013, and developed an eCCIq scale, containing seven variables and 32 secondary indexes. These seven factors are: the Content, Security, Hedonic, Quantity, Atmosphere, Convenience, and Social. Next, this paper will use the scale to explore the quality of the interaction between customers on tourism e-commerce platforms with descriptive analysis, and further explore the difference of demographics variables of eCCIq using ANOVA technique.

Chinese tourists and potential tourists often using tourism e-commerce platforms to interact with other users are taken as the research objects in our questionnaire survey. Considering the eCCI adequately, we mainly investigate the online travel community users. The respondents are asked to recall what they feel interacting with other customers on online travel communities during the past six months. The social network platform to interact with other customers often relate quality awareness. The questionnaire is divided into two parts: the first part is of the basic personal data, the travel community website names and the frequency of user login, and the second part is the main body including 7 variables and 32 items evaluating eCCIq. Likert 5 scale are used as quantitative measurement tools from strongly agree to strongly disagree. The questionnaires are sent to the online travel community users through BBS, Weibo, Wechat, network communities, E-mail and other channels by convenient sampling.

The survey lasts eight weeks. We distribute a total of 300 questionnaires and collect 245 responses, eventually getting 186 effective responses with 76% valid rate.

#### 4. DATA ANALYSIS AND RESULT

##### 4.1 Demographic analysis

**Table 1. Demographic characteristics (N=186)**

Personal characteristic	category	frequency	proportion
Gender	male	104	55.9%
	female	82	44.1%
Age	Less than 18	14	7.5%
	18-35	53	28.5%
	36-45	87	46.8%
	46 or older	32	17.2%
Education	High school and below	41	22%
	College and undergraduate	108	58.1%
	Graduate or above	37	19.9%
Occupation	student	67	36%
	Non-student	119	64%
Place of residence	First-tier cities	82	44.1%
	Second-tier cities	54	29%
	Overseas	35	18.9%
	others	15	8%

Demographic analysis is as Table 1 shows. It contains a male sample of 104 accounting for 55.9% of the total and the sample of 82 women, 44.1% of the total sample. In virtue of a group of respondents participating in sports leisure communities, a higher number of men consist with the marketing reality. Most eCC respondents are from the first-tier cities, and the overseas Chinese tourists also account for considerable proportion. There is no surprise because tourism E-commerce is more developed in this kind of city with more participants. Among the respondents, 36 to 45 years old users takes the largest proportion of for 46.8%, and 46 or older is the least of only 17.2%. College and undergraduate account for most of respondents of 58.1%. The non-students are in the majority. The overall situation is consistent with social network users.

## 4.2 Descriptive statistics of variables

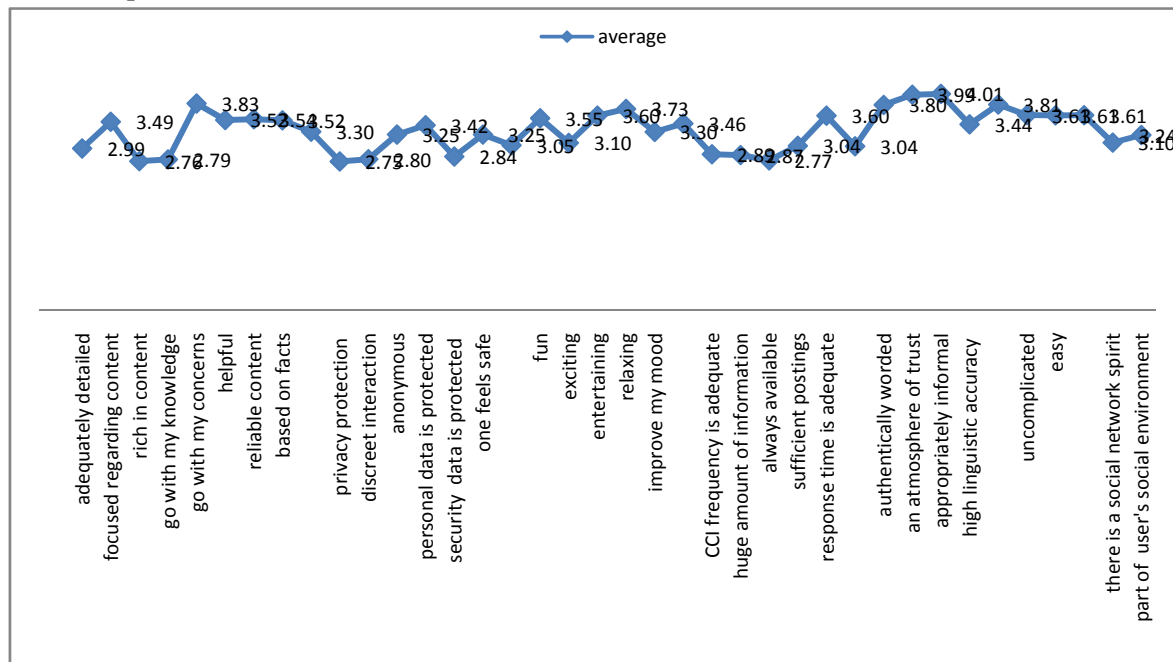


Figure 1. Average value of items of eCCIq

In 32 measuring items, the minimum value is 1 or 2, maximum is 5, and average from 2.75 to 4.01, which indicates that responses is different. Overall, relevant variables involved can be found within a reasonable range. Scatter plots of variables of this research are analyzed and the data is with normal distribution. In terms of standard deviation, each measurement item of the standard deviation is from 0.846 to 1.367, showing that respondents score the multi-items within a certain range of volatility and the overall distribution is reasonable. According to test results, the absolute value of Skewness coefficient between 0.008 and 0.976 are less than 3, and the absolute value of Kurtosis coefficient between 0.006 and 1.373 are less than 10, so the data is in line with the assumption of normal distribution.

## 4.3 Variance analysis of demographic variables

This study also examines the demographic variables' influence on eCCIq. According to gender on eCCIq's independent sample t test result, it shows that there is no significant difference of eCCIq perception in both men and women. The age on eCCIq perception, however, shows significant differences. Through the multiple comparison of Tukey Honestly Significant Difference (HSD), we find that age less than 18 has significant difference in security ( $F = 4.652^{**}$ )<sup>①</sup> compared to 19-35 and 36-45 age group. The former scores is higher than the latter, namely the less than 18 group perceive higher degree of CCI safety. There are also significant differences in the social judgment ( $F = 3.739^{**}$ ). 18 to 35 group scores higher than under 18 and 46 or old age group, and 36 to 45 group scores higher than 18 to 35 group.

According to the results of single factor analysis of variance test, the influence of education on eCCIq shows the significant differences. By further multiple comparison of Tukey HSD, we can see, graduate or above group and the high school or below group has significant difference in hedonic perception ( $F = 2.946^{*}$ ). The former score is lower than the latter, meaning graduate or above group perceives less enjoyment; Through Tamhane's T2 test, significant differences in the perception of the atmosphere is found between different education groups ( $F = 2.898^{*}$ ). High school or below education group scores higher than

<sup>①</sup>\*means  $P < 0.05$ , \*\*means  $P < 0.01$

college and undergraduate group, and the latter is higher than graduate or above group.

In addition, the independent samples t test results of the influence of occupation on eCCIq indicates that compared with non-students, students group score is higher in security ( $t = 1.821^{**}$ ), hedonic ( $t = 2.708^{**}$ ), quantity ( $t = 2.708^{**}$ ), atmosphere ( $t = 2.02^{**}$ ) variables and the difference is significant. On the contrary, in terms of social perception, non-students group score is higher than the students, and there is also a significant difference ( $t = 2.045^{*}$ ). Finally, the impact of place of residence variable on eCCIq doesn't pass the significance test.

#### 4.4 eCCIq analysis

As shown in table 2, the numbers and percentage of different variables and items indicate the quality evaluation. Concrete analysis is as follows:

**Table 2. The numbers and percentage of eCCIq variables**

Variable	Items	Strongly agree		Tend to agree		Neither agree nor disagree		Tend to disagree		Strongly disagree	
		Num	Pet	Num	Pet	Num	Pet	Num	Pet	Num	Pet
Content	adequately detailed	24	12.9%	45	24.2%	52	28.0%	36	19.4%	29	0.1%
	focused regarding content	43	23.1%	42	22.6%	72	38.7%	21	11.3%	8	0.1%
	rich in content	19	10.2%	37	19.9%	44	23.7%	52	28.0%	34	0.2%
	go with my knowledge	11	5.9%	42	22.6%	58	31.2%	47	25.3%	28	0.1%
	go with my concerns	52	28.0%	74	39.8%	42	22.6%	12	6.5%	6	0.0%
	helpful	42	22.6%	52	28.0%	62	33.3%	21	11.3%	9	0.1%
	reliable content	41	22.0%	63	33.9%	50	26.9%	19	10.2%	13	0.1%
based on facts	35	18.8%	62	33.3%	63	33.9%	16	8.6%	10	0.0%	
Security	privacy protection	19	10.2%	20	10.8%	36	19.4%	65	34.9%	46	0.2%
	discreet interaction	23	12.4%	24	12.9%	63	33.9%	44	23.7%	32	0.1%
	anonymous	32	17.2%	64	34.4%	32	17.2%	35	18.8%	23	0.1%
	personal data is protected	43	23.1%	53	28.5%	53	28.5%	14	7.5%	23	0.0%
	security data is protected	21	11.3%	32	17.2%	51	27.4%	61	32.8%	21	0.2%
	one feels safe	25	13.4%	64	34.4%	51	27.4%	25	13.4%	21	0.1%
Hedonic	fun	44	23.7%	64	34.4%	43	23.1%	21	11.3%	14	0.1%
	exciting	25	13.4%	57	30.6%	42	22.6%	35	18.8%	27	0.1%
	entertaining	45	24.2%	64	34.4%	45	24.2%	22	11.8%	10	0.1%
	relaxing	54	29.0%	63	33.9%	42	22.6%	18	9.7%	9	0.1%
	improve my mood	36	19.4%	52	28.0%	48	25.8%	32	17.2%	18	0.1%
Quantity	CCI frequency is adequate	14	7.5%	45	24.2%	54	29.0%	52	28.0%	21	0.2%
	huge amount of information	18	9.7%	45	24.2%	53	28.5%	35	18.8%	35	0.1%
	always available	13	7.0%	41	22.0%	51	27.4%	53	28.5%	28	0.2%
	sufficient postings	17	9.1%	42	22.6%	73	39.2%	40	21.5%	14	0.1%
	response time is adequate	35	18.8%	69	37.1%	62	33.3%	13	7.0%	7	0.0%
Atmosphere	authentically worded	43	23.1%	78	41.9%	53	28.5%	9	4.8%	3	0.0%
	an atmosphere of trust	61	32.8%	80	43.0%	32	17.2%	8	4.3%	5	0.0%
	appropriately informal	54	29.0%	83	44.6%	45	24.2%	4	2.2%	0	0.0%
	high linguistic accuracy	31	16.7%	63	33.9%	63	33.9%	15	8.1%	14	0.0%
Convenience	uncomplicated	43	23.1%	74	39.8%	30	16.1%	32	17.2%	7	0.1%
	easy	42	22.6%	73	39.2%	35	18.8%	28	15.1%	8	0.1%
Social	there is a social network spirit	33	17.7%	39	21.0%	53	28.5%	36	19.4%	25	0.1%
	part of user's social environment	35	18.8%	45	24.2%	57	30.6%	28	15.1%	21	0.1%

The following so-called high quality rate is the sum of percentage of strongly agree and tend to agree.

Firstly, Content in eCCI. As table 2 displays, the content of eCCI is largely agreed by most customers. The

high quality rate of the item “go with my concerns” is the highest of 67.7% and “focused regarding content”, “helpful” and “reliable content” are above 50.5% on that rate. It shows that eCCI is around with tourism themes and stems from real experience. The lowest high quality rate two are “rich content” and “go with my state of knowledge” which shows that interactive content is less diversified and lots of circumstances is beyond the customers own knowledge with more learning and advisory aims on interactions.

Secondly, Security in eCCI. In security aspect, three items are believed to be strongly disagree or tend to disagree and the other three items are opposite. One is “my personal data is protected adequately” and the other three are “I can stay anonymous” and “I feel safe” with respective high quality rate of 51.% and 47.8%. The reason is considered that the customers usually trust in the community websites subjectively but the privacy reveal accident-prone objectively makes online users afraid of the security problems.

Thirdly, Hedonic in eCCI. Like figure shows, hedonic in eCCI gets higher scores with mean value of 3.81. Majority customers in tourism community platforms enjoy the interactions with other customers. It make them relax and interested, but only a few of them feel exciting. The immersion degree is not very high.

Fourthly, Quantity of eCCI. In this part, the high quality rate of eCCI quantity is from 29% to 33.9% with an exception of “the response time is adequate” which has a little higher percentage of 55.9%. Overall, the eCCI quantity is not very high which shows the development of tourism community platforms is on elementary phase and the enthusiasm taking part in the interactive activity is not high with low frequency and less time spent.

Fifthly, Atmosphere of eCCI. As seen above, the atmosphere of eCCI is rather good with high quality rate on three items more than 65.1%, even of 75.8% on “an atmosphere of trust”. It shows that interaction between customers is natural as they wish. Only an item of “linguistic accuracy” is slightly low but there is still a percentage of 50.5%.

Sixthly, Convenience of eCCI. There are only two indicators on the variable of convenience. The view is of identity and consistence. More than 61.8% of people think the interaction is easy and uncomplicated, which shows the technique of tourism E-commerce platform is rather mature and complete.

Finally, Social of eCCI. The average value is not very high on Social variable of 3.17. Many customers may not know very clearly about the social spirit and lots of them use the platforms considering more utilitarian purposes, e.g consulting, recommendation and flaunt, tourism strategy, etc, not purely social activities.

## 5. DISCUSSION

The main purpose of this study is to introduce eCCIq construct, using the latest-developed eCCIq scale to explore eCCIq under Chinese environment, to understand the main features of eCCI participants in travel communities, and to distinguish the quality of interaction between tourists of different demographic variables. The results of the survey reflect the whole situation of eCCIq in tourism community to a certain extent. The atmosphere variable gets the highest quality evaluation with average value of 3.81 shows that participants like travel community interaction between other customers and feel comfortable in the interactive experiences. The second highest score is hedonic. It means that many of the participants begin to enjoy this interactive process. It also suggests that the motives of the tourists on the community website is most likely due to share, experience and make like-minded friends. Other variables such as content, convenient and social has the average values above 3, which shows that most respondents give a basic recognition on that the quality. Only a few parts have differences in specific indicators, such as “CCI goes with my concerns” scores higher, but score lower in “adequately details” and “rich in content”, which suggests that many participants despise share but pay attention to travel strategy. Low scores is variable of security and variable of quantity. In term of security, today's frequent network security accidents make participants distrust it objectively, but rich experience and social value of website itself provided let participants trust the website subjectively, which exists trust contradictions that is

different from western countries. In the future research, eCCIq scale should be reconsidered and revised when used in Chinese situation. In term of quantity in eCCI, the overall user activity ranking is not high, which shows that China's tourism community development is still in its infancy, but there is an exception of some websites which market positioning highly focuses on certain customers, such as qyer.com in which the user activity ranking is very high and the score is high, but the quantity in other general travel community websites is low, and engagement and coherency extent are dissatisfactory. In addition, as mentioned above, the difference analysis on demographic variables also shows the characteristics of tourism community users today. All results above give suggestions to the e-commerce enterprises to pay more attention on eCCI quality and to recognize and learn from the important quality issues so as to control and manage the eCCI to achieve higher customer satisfaction and good experience.

This study also has certain limitations on the sampling and the method, but since eCCIq is a new construct, the purpose of this research is to introduce eCCIq scale to consider and evaluate the CCI on China's tourism e-commerce platforms from the view of quality, at the same time, it reflects the characteristics of CCI on China's tourism e-commerce platforms objectively and probes the applicable problems of eCCIq scale in Chinese situation. It makes good foundations for modification and optimization of the scale in the future. On this basis, the influence factors and variable results such as user satisfaction should be explored henceforth.

#### ACKNOWLEDGEMENT

This research was supported by the Ministry of Education Humanities and Social Science Foundation of China under Grant 13YJC630062, Social Science Project of Universities of Shandong Province under Grant J13WG27, Dr Fund Project of University of Jinan under Grant B1404, Social Science Key Project of University of Jinan under Grant X1314.

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